

Service Manual

Radio

FM-MW-SW1~4
6-Band Portable Radio

RF-B300/[©]



■ SPECIFICATIONS

SW

Frequency Range:

SW1 1.6~4MHz

SW2 4~10MHz

SW3 10~20MHz

SW4 20~30MHz

Type:

IF:

Double superheterodyne SW2~4

1st IF: 2MHz

2nd IF: 455kHz

Sensitivity:

400Hz, 30%

Modulation 50mW

MAX S/N 20dB

SW1 35μV/m 125μV/m

SW2 1.8μV 9μV

SW3 1.0μV 6μV

SW4 4μV 10μV

Selectivity:

SW2~4;

WIDE ±3.5kHz (-6dB)

±7.0kHz (-50dB)

NARROW ±1.5kHz (-6dB)

±4.0kHz (-50dB)

Image Interference Ratio:

SW1 25dB at 4MHz

SW2 30dB at 10MHz

SW3 20dB at 20MHz

Antenna:

Whip, EXT. Antenna (High Impedance) Ferrite core (SW1)

MW

Frequency Range:

MW 525~1610kHz

Type:

Single superheterodyne

IF:

455kHz

Sensitivity:

400Hz, 30%

Modulation 50mW

MAX S/N 20dB

40μV/m 180μV/m

Image Interference Ratio: 35dB at 1000kHz

Antenna:

Ferrite core

Whip, EXT. Antenna (High Impedance)

FM

Frequency Range:

FM 88~108MHz

Type:

Single superheterodyne

IF:

10.7MHz

Sensitivity:

2.5μV/75Ω (-3dB, Limit Sens)

2.5μV/75Ω (S/N 26dB)

Image Interference Ratio:

30dB at 98MHz

Antenna:

Whip, EXT. Antenna (75Ω)

General

Speaker:

10cm (4") PM Dynamic speaker (4Ω)

Power Source:

AC 110~127/220~240V, 50/60Hz

DC 9V (six "C" size Flashlight

Batteries:

(Panasonic UM-2 or equivalent)

Power Consumption:

6W

Jacks:

Earphone/EXT. Speaker (4~8Ω) φ3.5

REC OUT (10kΩ) φ3.5

AC IN

FM 75Ω

EXT. Antenna:

AM High Impedance

Dimensions (W×H×D):

348×215×108mm

(13¹¹/₁₆×8¹/₂×4¹/₂)

Weight:

2.18kg (4 lb 12.8 oz) without

batteries

Weights and dimensions shown are approximate.
(Les poids et dimensions mentionnés sont approximatifs.)
Specifications are subject to change without notice.

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Panasonic

DISASSEMBLY INSTRUCTIONS

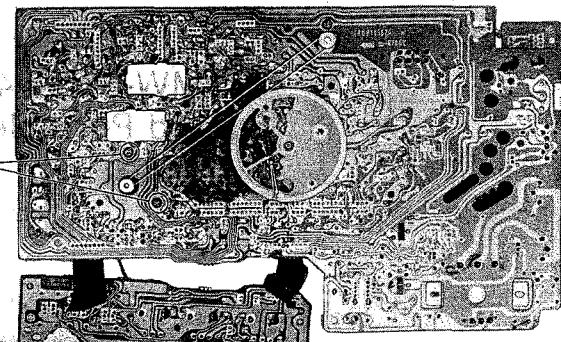
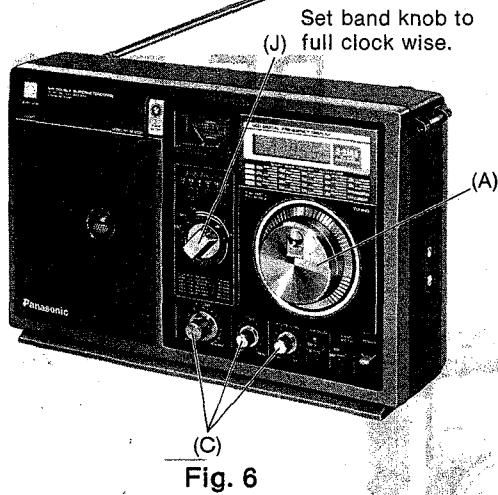


Fig. 10

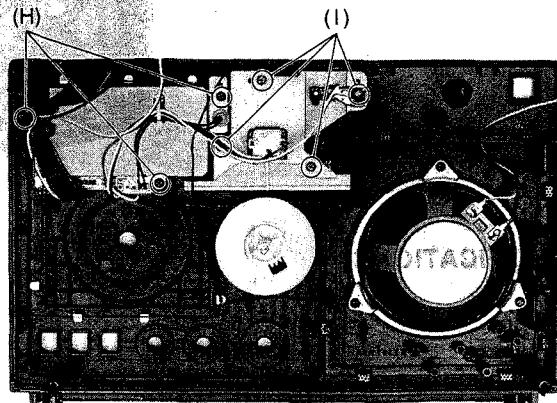
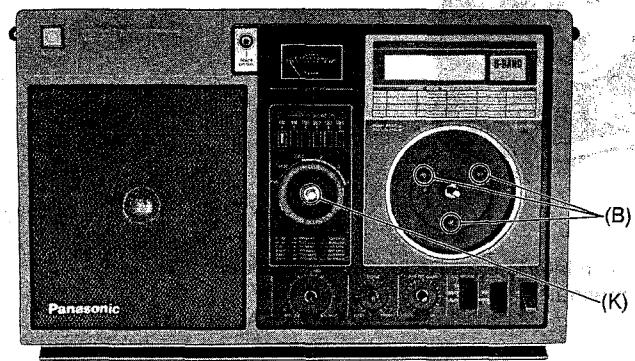


Fig. 11

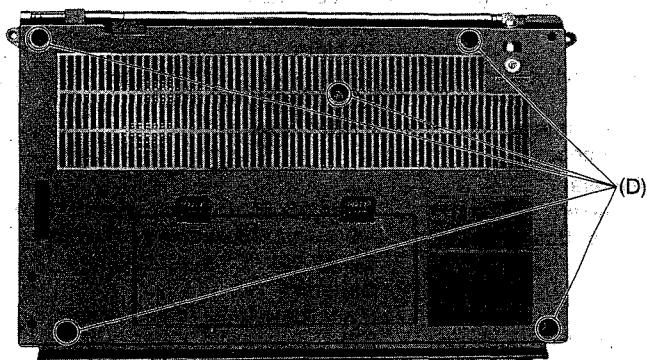


Fig. 8

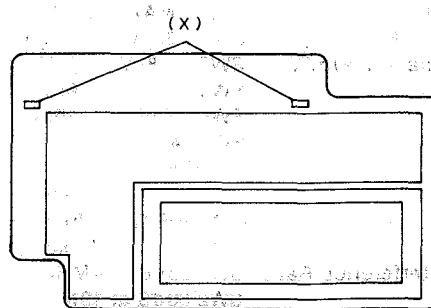
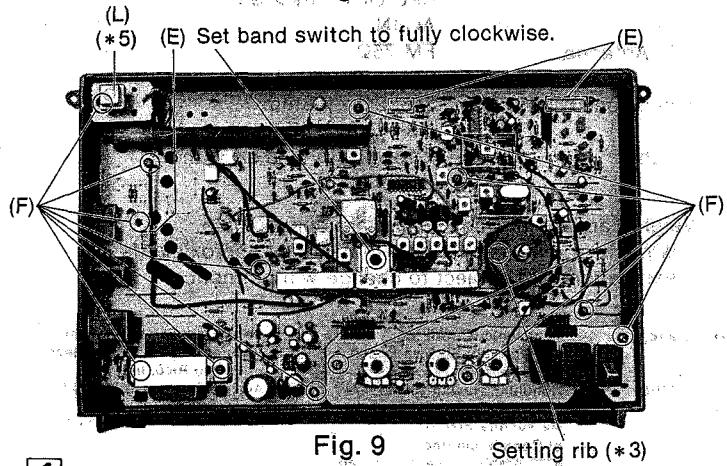


Fig. 12

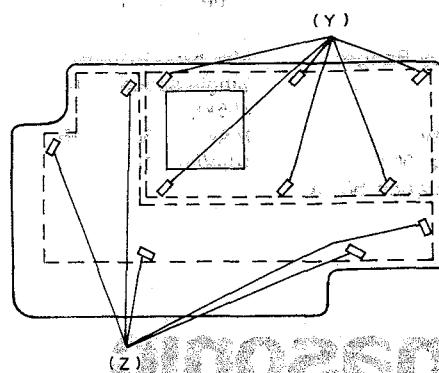


Fig. 13

SAFETY PRECAUTIONS (For U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

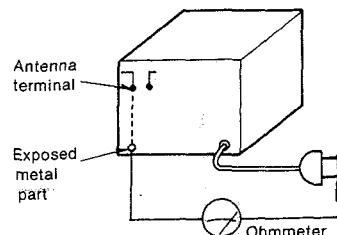


Fig. 1

Resistance = 3MΩ—5.2MΩ

INSULATION RESISTANCE TEST (For U.S.A.)

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads, antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3M\Omega$ and $5.2M\Omega$ to all exposed parts*. (Fig. 1) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. 2)
- * Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.
4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

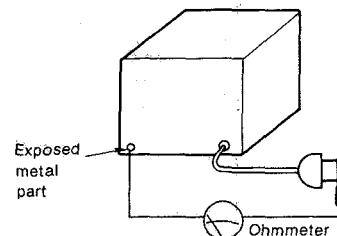


Fig. 2

Resistance = Approx ∞

LOCATION OF CONTROLS AND COMPONENTS

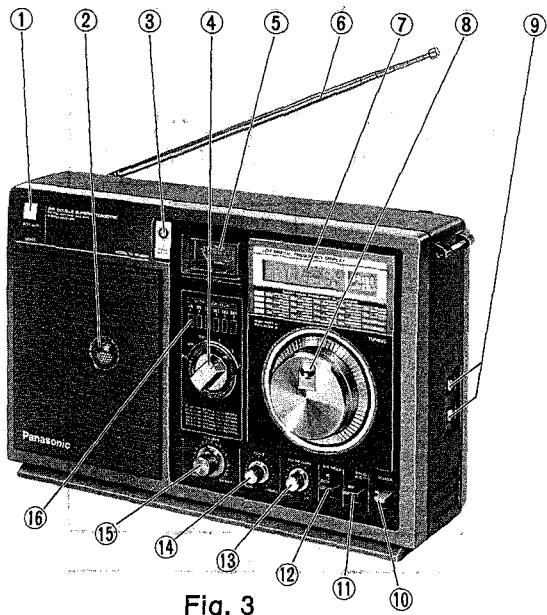


Fig. 3

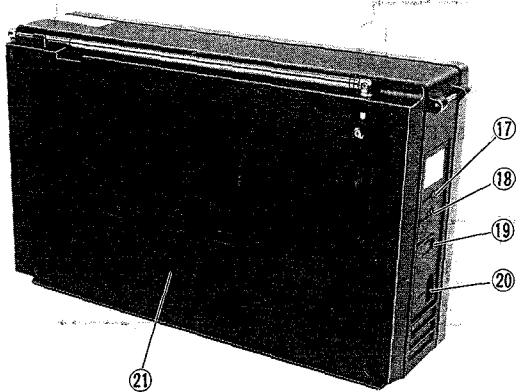
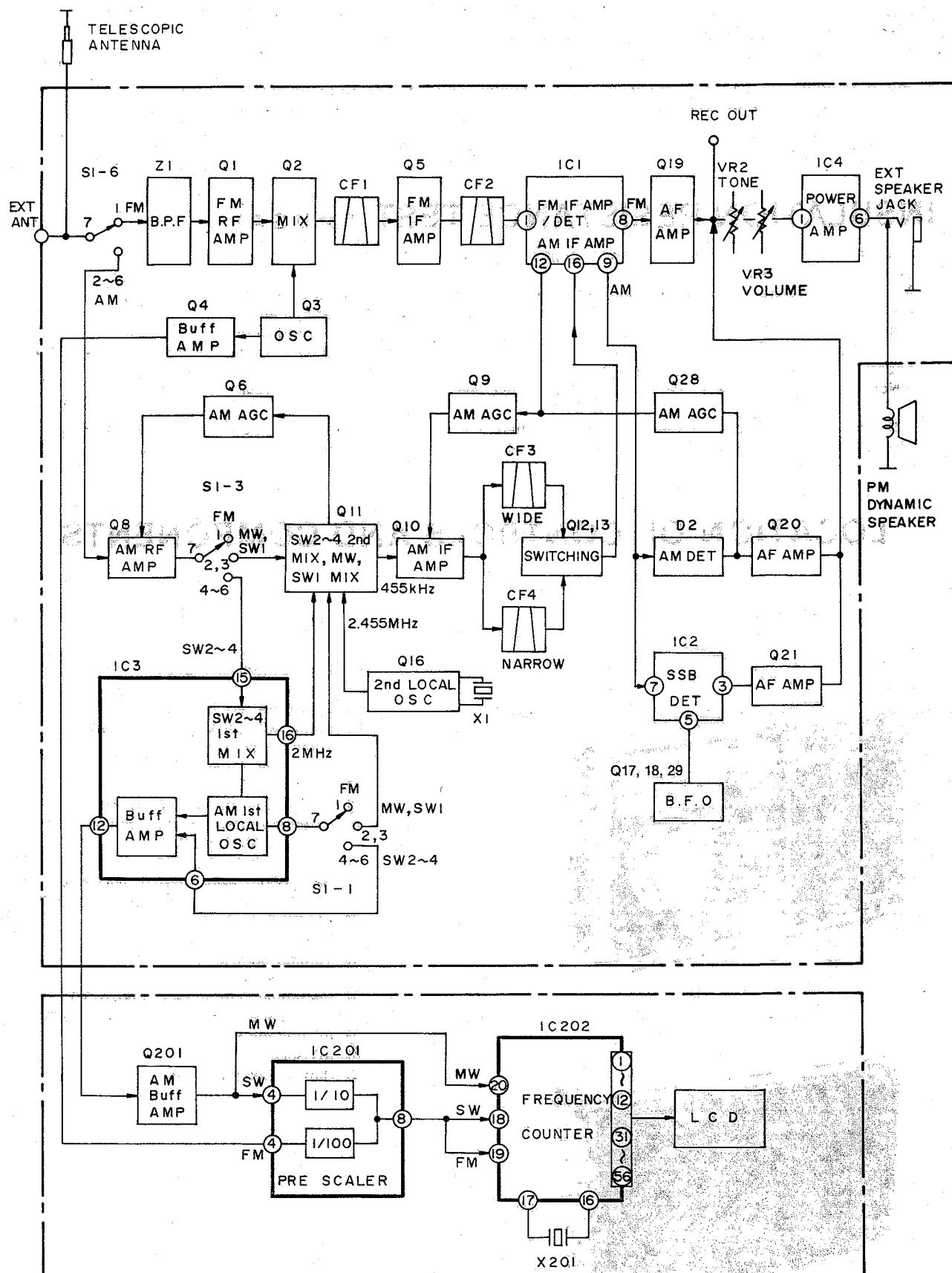


Fig. 4

- ① Light Switch (ON, OFF)
- ② Speaker 10cm (4") 4Ω
- ③ Power, Battery Indicator
- ④ Band Switch (FM, MW, SW1, SW2, SW3, SW4)
- ⑤ Tuning, Signal Meter
- ⑥ Telescopic Antenna
- ⑦ Frequency Display
- ⑧ Tuning Control (Pull...Slow, Push...Fast)
- ⑨ External Antenna/Earth Terminal (FM 75Ω, AM High IMP.)
- ⑩ Power Switch (ON, OFF)
- ⑪ Band Width Switch (WIDE, NARROW)
- ⑫ AM Mode Switch (AM, USB/CW, LSB/CW)
- ⑬ AM RF Gain Control
- ⑭ Tone Control
- ⑮ Volume Control
- ⑯ Band Switch Indicator
- ⑰ Recording Output Jack (10kΩ) φ3.5
- ⑱ Earphone/External Speaker Jack (4~8Ω) φ3.5
- ⑲ AC Voltage Selector
- ⑳ AC Socket
- ㉑ Battery Compartment

BLOCK DIAGRAM



HOW TO REASSEMBLE THE LCD BLOCK

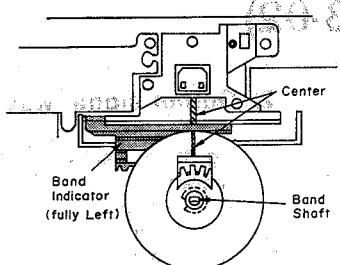


Fig. 14

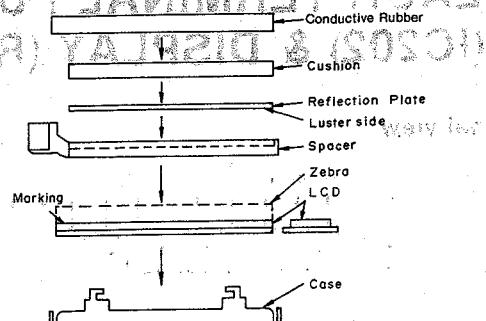


Fig. 15

Ref. No.	Procedure	Shown in Fig. —.	To remove —.	Remove —.
1		6		Tuning Knob(A)×1
2		7		Screw (3×12)(B)×3
3	1~5	6	Front Cabinet *1, 2	Control Knob(C)×3
4		8		Screw (3×40)(D)×5
5		9		Socket(E)×3
6	1~6	9	Circuit Board	Screw (3×12)(F)×13
7	1~7	10	Tuning Shaft Ass'y *3	Screw (3×12)(G)×2
8	1~5, 8	11	LCD Block	Screw (3×10)(H)×3
9	1~5, 9	11	Meter	Screw (3×12)(I)×4
10	1~5, 10, 11	6	Band Shaft *4	Band Knob(J)×1
11		7		Circlip (φ4)(K)×1
12	1~5, 12	9	Light Button *5	Button(L)×1
13	1~5, 8, 13	12	LCD Bracket	Unsolder(X)×2
14	1~5, 8, 13, 14	13	LCD Case	Unsolder(Y)×6
15	1~5, 8, 13~15	13	LCD Shield Cover	Unsolder(Z)×5

- *1. To reassemble the front cabinet, set AM mode switch to USB/CW, band width switch to WIDE and Power switch to ON position.
- *2. To reassemble the front cabinet, set band knob and band switch to full clockwise.
- *3. To reassemble the tuning shaft ass'y, set the rib as shown in fig. 9.
- *4. To reassemble the band shaft, set band switch indicator to full left and band shaft to center as shown in fig. 14.
- *5. To remove the light button, set light switch to OFF position.

DIAL THREADING

Cord length is 100cm (39 $\frac{1}{3}$ ')

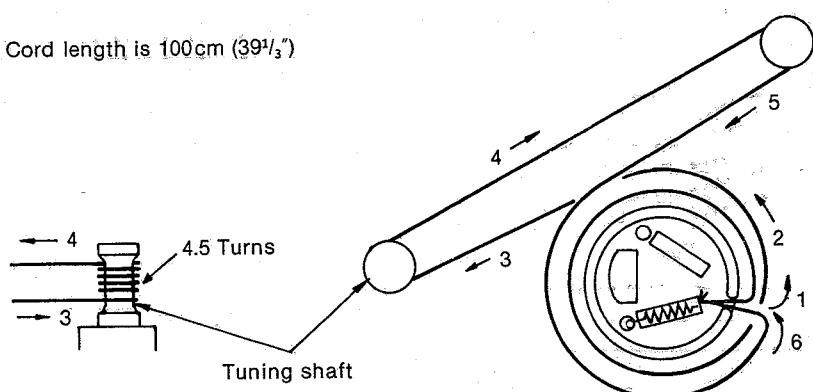


Fig. 16

EACH TERMINAL FUNCTION OF RVIMSM5527GS (IC202) & DISPLAY (RADLCD453-02)

1) Terminal view

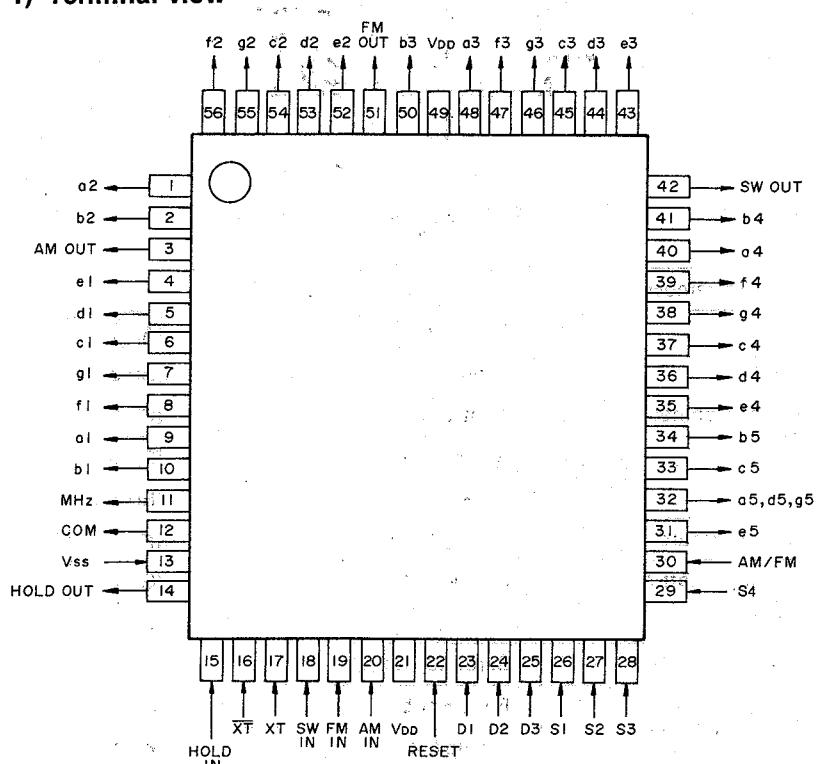


Fig. 17

2) Output signal waveforms for LCD

Fig. 18 indicates the timing chart of LCD operation.

No.	Phase of segment signal vs. common signal	Segments of LCD
1	Oposite	ON
2	Same	OFF

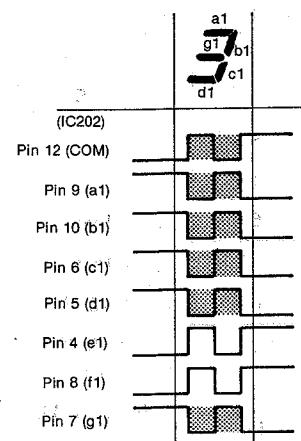


Fig. 18

3) Block diagram

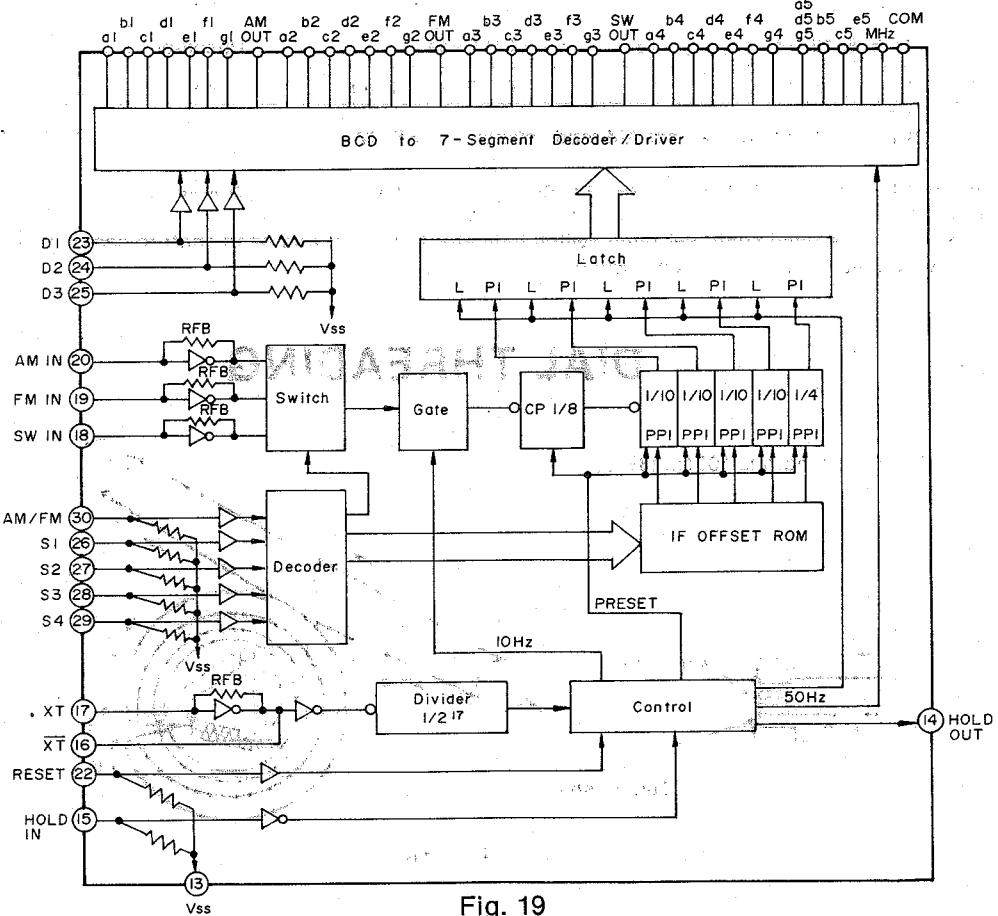


Fig. 19

4) Explanation of each terminal

Pin No.	Symbol	Terminal	Description																																			
1, 2	a2, b2	LCD segment signal	Output signals for digit 2 LCD segments.																																			
3	AM OUT		Output signal for "MW" and "kHz" LCD segment.																																			
4~10	a1~g1		Output signals for digit 1 LCD segments.																																			
11	MHz		Output signal for "MHz" LCD segment.																																			
12	COM	LCD common signal	Output signal for LCD COM segment.																																			
13	Vss	Ground	Ground terminal.																																			
16, 17	XT, XT	Crystal oscillator	Terminals used for connecting a crystal oscillator. Connects a 6.5536MHz crystal oscillator.																																			
			Pin16-2.6Vp-p Pin17-4Vp-p 0.125μsec																																			
18, 19	SW IN, FM IN	SW and FM local OSC input	The FM and SW2~4 local oscillation signal is inputted through the prescaler (FM 1/100, SW 1/10) to this terminal.																																			
			3V -1V 1.4 μsec (FM85.1MHz)																																			
20	AM IN	MW and SW1 local OSC input	The MW and SW1 local oscillation signal is inputted directly from No. 12 pin of IC3 (AN7212) to this terminal.																																			
			2.3V -0.7V 0.7μsec (AM1008KHz)																																			
21, 49	VDD	POWER INPUT	Power source input.																																			
23~25	D1~D3	Display mode select input	<table border="1"> <tr> <th>D1</th> <th>D2</th> <th>D3</th> <th>Digit</th> </tr> <tr> <td>L</td> <td>L</td> <td>L</td> <td>5</td> </tr> <tr> <td>L</td> <td>H</td> <td>H</td> <td>4</td> </tr> </table> <p>Low...0V, Hi...3.5V</p>	D1	D2	D3	Digit	L	L	L	5	L	H	H	4																							
D1	D2	D3	Digit																																			
L	L	L	5																																			
L	H	H	4																																			
26~30	S1~S4, AM/FM	IF off-set frequency select input	<table border="1"> <tr> <th>AM/FM</th> <th>S1</th> <th>S2</th> <th>S3</th> <th>S4</th> <th>MODE</th> <th>IF Off-Set Freq.</th> </tr> <tr> <td>L</td> <td>L</td> <td>H</td> <td>L</td> <td>L</td> <td>FM</td> <td>-10.7MHz</td> </tr> <tr> <td>H</td> <td>L</td> <td>L</td> <td>L</td> <td>L</td> <td>MW</td> <td>-455kHz</td> </tr> <tr> <td>H</td> <td>H</td> <td>L</td> <td>L</td> <td>L</td> <td>SW1</td> <td>-455kHz</td> </tr> <tr> <td>H</td> <td>H</td> <td>L</td> <td>H</td> <td>L</td> <td>SW2~4</td> <td>-2.0MHz</td> </tr> </table> <p>Low...0V, Hi...3.5V</p>	AM/FM	S1	S2	S3	S4	MODE	IF Off-Set Freq.	L	L	H	L	L	FM	-10.7MHz	H	L	L	L	L	MW	-455kHz	H	H	L	L	L	SW1	-455kHz	H	H	L	H	L	SW2~4	-2.0MHz
AM/FM	S1	S2	S3	S4	MODE	IF Off-Set Freq.																																
L	L	H	L	L	FM	-10.7MHz																																
H	L	L	L	L	MW	-455kHz																																
H	H	L	L	L	SW1	-455kHz																																
H	H	L	H	L	SW2~4	-2.0MHz																																
31~34	a5~e5, g5	LCD segment signal	Output signals for digit 5 LCD segments.																																			
35~41	a4~g4		Output signals for digit 4 LCD segments.																																			
42	SW OUT		Output signal for "SW" and "P4" segments of LCD.																																			
43~48, 50	a3~g3		Output signals for digit 3 LCD segments.																																			
51	FM OUT		Output signals for "FM" and "P3" segments of LCD.																																			
52~56	c2~g2		Output signals for digit 2 LCD segments.																																			

5) Displays internal wiring diagram

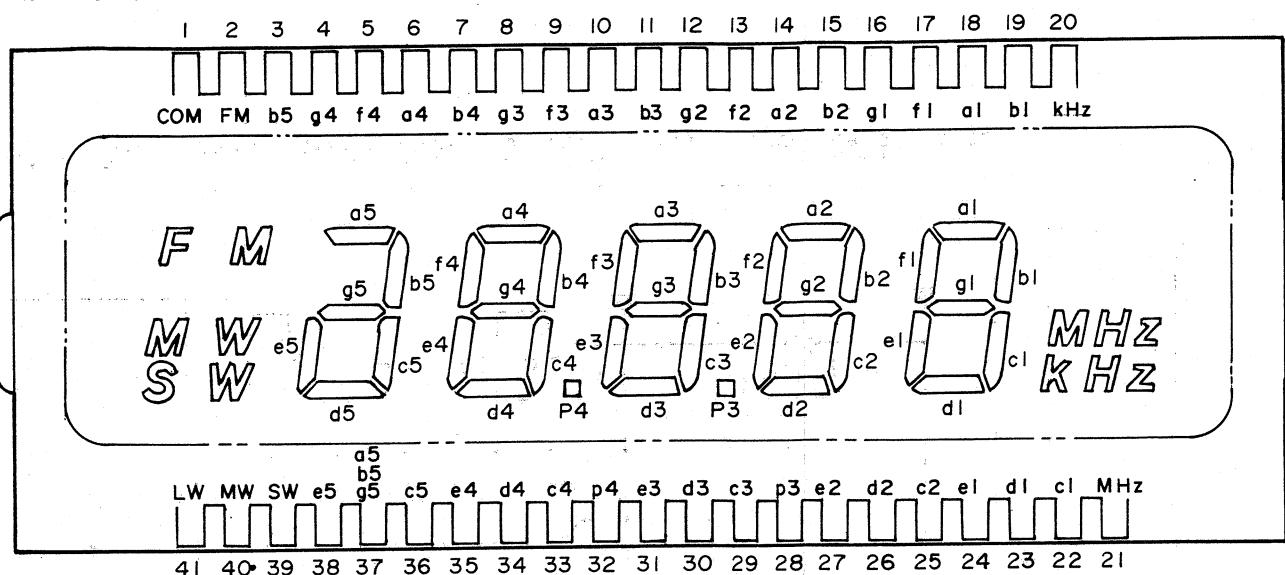


Fig. 20

- ALIGNM
 - 1. Set
 - 2. Set
 - 3. Set
 - 4. Set
 - 5. Set
- MW, SW
 - BAND
 - (1) MW
 - (2) MW
 - (3) MW
 - (4) MW
 - (5) MW
 - (6) SW1
 - (7) SW1
 - (8) SW1
 - (9) SW1
 - (*) Ce
 - (10) SW2
 - (11) SW2
 - (12) SW2
 - (13) SW2
 - (14) SW2

MEASUREMENTS AND ADJUSTMENTS

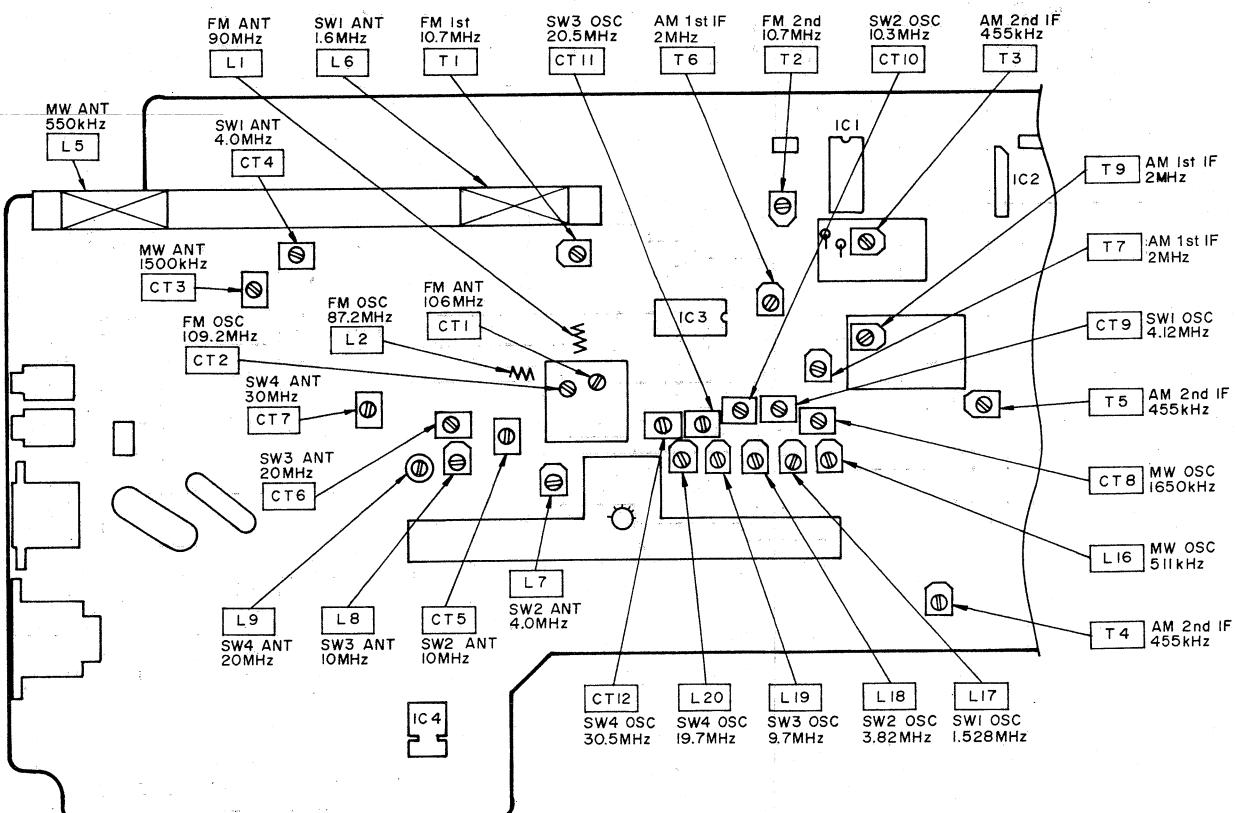


Fig. 21

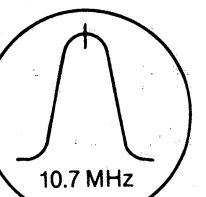


Fig. 22

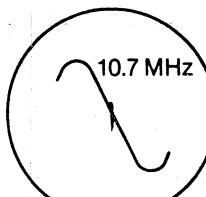


Fig. 23

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set tone control to treble.
3. Set band switch to MW, SW1, SW2, SW3, SW4 or FM.
4. Set RF gain control to maximum.
5. Set power switch to on.
6. Set AM mode switch to AM.
7. Set band width switch to narrow.
8. Set power source voltage to 9V DC.
9. Output of signal generator should be no higher than necessary to obtain an output reading.

■ MW, SW1, SW2, SW3 and SW4 ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
AM-2nd IF (455kHz) ALIGNMENT						
(1) MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455kHz 30% Mod. at 400Hz	Point of non-interference. (on/about 600kHz)	Output meter across voice coil.	T4 (AM 1st IFT) T5 (AM 2nd IFT) T3 (AM 3rd IFT)	Adjust for maximum output.
MW-RF ALIGNMENT						
(2) MW	"	511kHz	Tuning capacitor fully closed.	"	L16 (MW OSC Coil)	Adjust for maximum output.
(3) MW	"	1,650kHz	Tuning capacitor fully open.	"	CT8 (MW OSC Trimmer)	"
(4) MW	"	550kHz	Tune to signal.	"	(*1) L5 (MW ANT Coil)	Adjust for maximum output. Adjust L5 by moving coil bobbin along ferrite core.
(5) MW	"	1,500kHz	"	"	CT3 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
SW1-RF ALIGNMENT						
(6) SW1	"	1.528MHz	Tuning capacitor fully closed.	"	L17 (SW1 OSC Coil)	Adjust for maximum output.
(7) SW1	"	4.12MHz	Tuning capacitor fully open.	"	CT9 (SW1 OSC Trimmer)	"
(8) SW1	"	1.6MHz	Tune to signal.	"	(*1) L6 (SW1 ANT Coil)	Adjust for maximum output. Adjust L6 by moving coil bobbin along ferrite core.
(9) SW1	"	4.0MHz	"	"	CT4 (SW1 ANT Trimmer)	Adjust for maximum output. Repeat steps (6)~(9).
AM-1st IF (2MHz) ALIGNMENT						
(10) SW2	Connect to test point ∇ through ceramic capacitor (10pF). Negative side to test point ∇ .	2MHz	Point of non-interference.	"	T9 (AM 1st IFT) T7 (AM 2nd IFT) T6 (AM 3rd IFT)	Adjust for maximum output.
SW2-RF ALIGNMENT						
(11) SW2	"	3.82MHz	Tuning capacitor fully closed.	"	L18 (SW2 OSC Coil)	Adjust for maximum output.
(12) SW2	Connect to test point ∇ through ceramic capacitor (10pF). Negative side to test point ∇ .	10.3MHz	Tuning capacitor fully open.	"	CT10 (SW2 OSC Trimmer)	"
(13) SW2	"	4.0MHz	Tune to signal.	"	L7 (SW2 ANT Coil)	"
(14) SW2	"	10MHz	"	"	CT5 (SW2 ANT Trimmer)	Adjust for maximum output. Repeat steps (11)~(14).

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
SW3-RF ALIGNMENT						
(15) SW3		9.7MHz	Tuning capacitor fully closed.	Output meter across voice coil.	L19 (SW3 OSC Coil)	Adjust for maximum output.
(16) SW3	Connect to test point ∇ through ceramic capacitor (10pF).	20.5MHz	Tuning capacitor fully open.	"	CT11 (SW3 OSC Trimmer)	"
(17) SW3	Negative side to test point ∇ .	10MHz	Tune to signal.	"	L8 (SW3 ANT Coil)	"
(18) SW3		20MHz	"	"	CT6 (SW3 ANT Trimmer)	Adjust for maximum output. Repeat steps (15)~(18).
SW4-RF ALIGNMENT						
(19) SW4		19.7MHz	Tuning capacitor fully closed.	"	L20 (SW4 OSC Coil)	Adjust for maximum output.
(20) SW4		30.5MHz	Tuning capacitor fully open.	"	CT12 (SW4 OSC Trimmer)	"
(21) SW4		20MHz	Tune to signal.	"	L9 (SW4 ANT Coil)	"
(22) SW4		30MHz	"	"	CT7 (SW4 ANT Trimmer)	Adjust for maximum output. Repeat steps (19)~(22).

■ FM ALIGNMENT

BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
	CONNECTIONS	FREQUENCY				
FM-IF ALIGNMENT						
(1) FM	High side thru. 0.001 μ F to test point ∇ . Negative side to test point ∇ .	10.7MHz (SWP.)	Point of non-interference. (on/about 90MHz)	Connect vert. amp. of scope to test point ∇ . Negative side to test point ∇ .	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig.22.)
(2) FM	"	"	"	"	T2 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig.23.)
FM-RF ALIGNMENT						
(3) FM		87.2MHz	Variable capacitor fully closed.	Output meter across voice coil.	L2 (FM OSC Coil)	(*2) Adjust for maximum output.
(4) FM	Connect to test point ∇ through FM dummy antenna. Negative side to test point ∇ .	109.2MHz	Variable capacitor fully open.	"	CT2 (FM OSC Trimmer)	"
(5) FM		90MHz	Tune to signal.	"	L1 (FM ANT Coil)	"
(6) FM		106MHz	"	"	CT1 (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(6).

(*2) Three output responses will be present; proper tuning is the center frequency.

■ IC BLOCK DIAGRAM

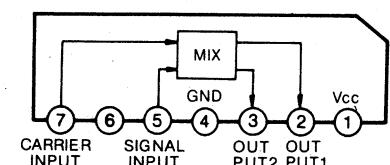
IC1 RVILA1210

Notes:

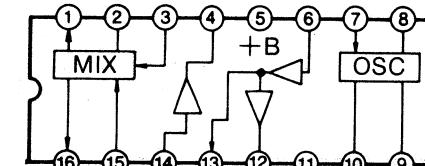
1. S1-1~S1-10: Band switch in "FM" position.
(1...FM, 2...MW, 3...SW1, 4...SW2,
5...SW3, 6...SW4)
2. S2-1, S2-2: Power switch in "OFF" position.
3. S3: Band width switch in "NARROW" position.
(1...WIDE, 3...NARROW)
4. S4-1, S4-2: AM mode switch in "AM" position.
(1...AM, 4...USB/CW, 2...LSB/CW)
5. S5: Light switch in "OFF" position.
6. S6: AC/DC IN switch in "DC IN" position.
7. S7: Voltage selector switch in "240V" position.
8. VR1: AM RF gain VR.
9. VR2: Tone control VR.
10. VR3: Volume control VR.
9. The mark (▼) shows test point.
e.g. ▼ = test point 1.
10. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
 - No mark...FM position, ()...AM position,
 - []...MW, SW1 position,
 - < >...BFO position, [[]...SW2~4 position
 - _____...USB, LSB, CW position.
11. Battery current: No signal 60
Maximum output 300

Important safety notice
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards. When servicing it is essential that only manufacturer's specified parts be used for the critical components in the shaded areas of the schematic.

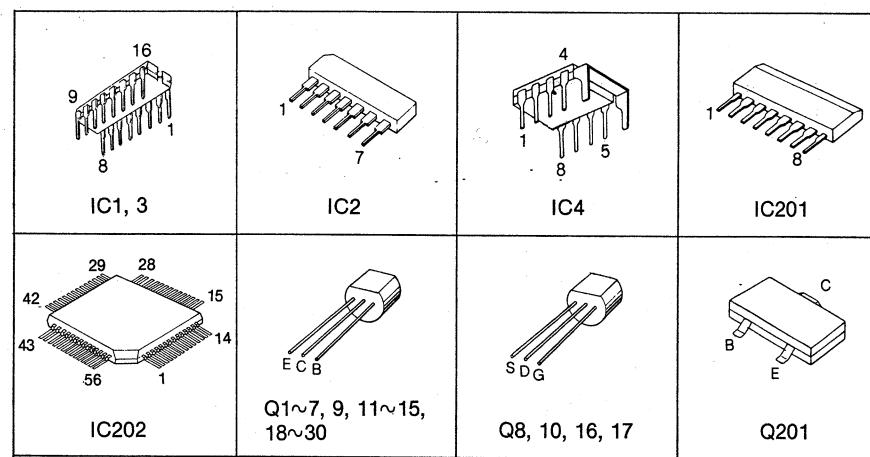
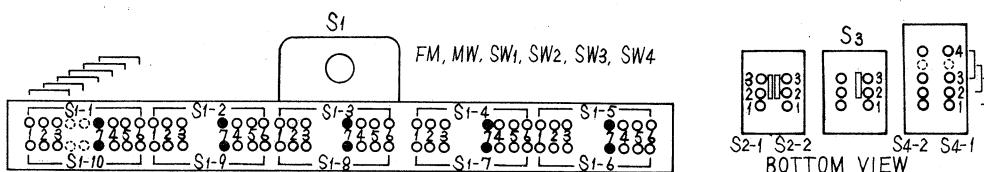
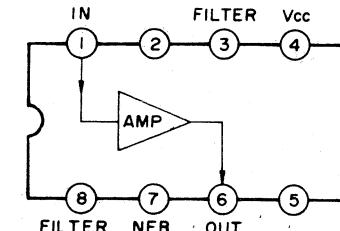
IC2 RVIUPC1037I



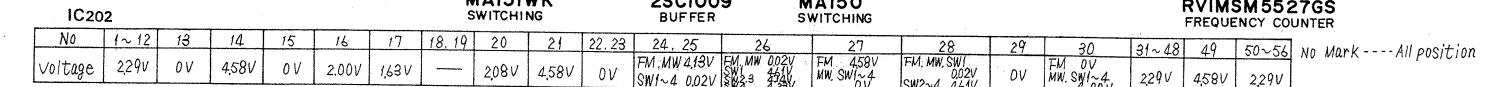
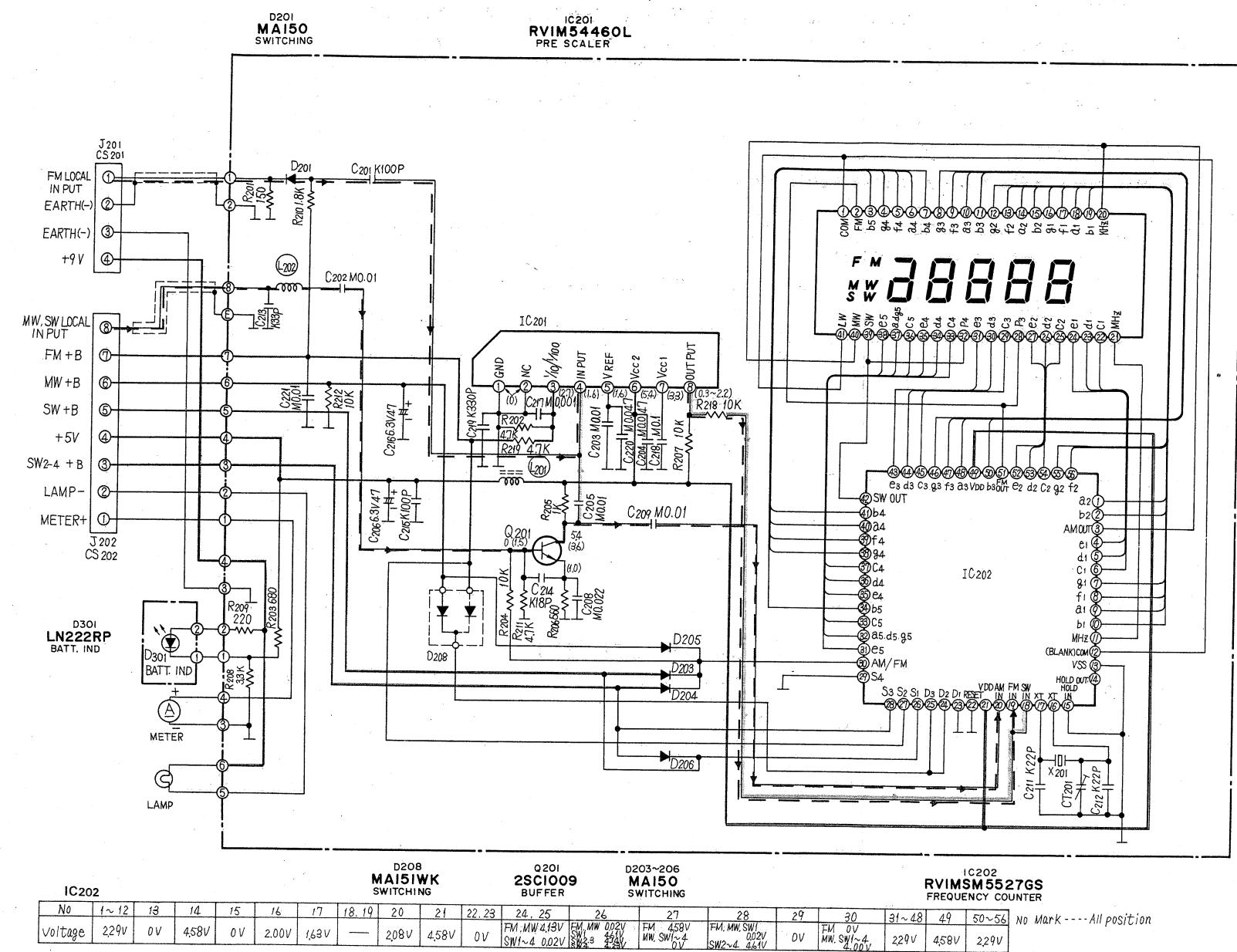
IC3 AN7212



IC4 RVIUPC1213

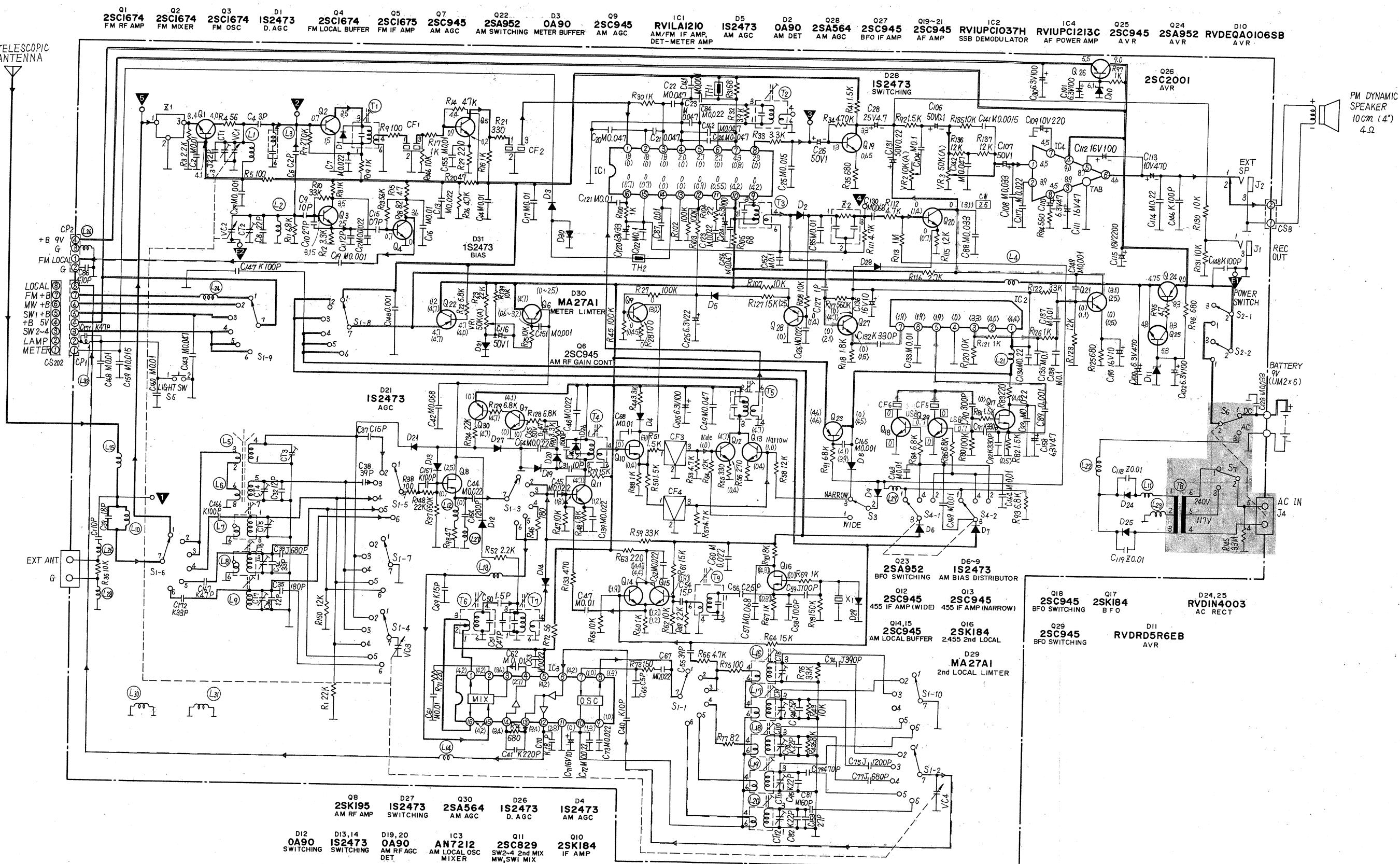


SCHEMATIC DIAGRAM MODEL RF-B300/©

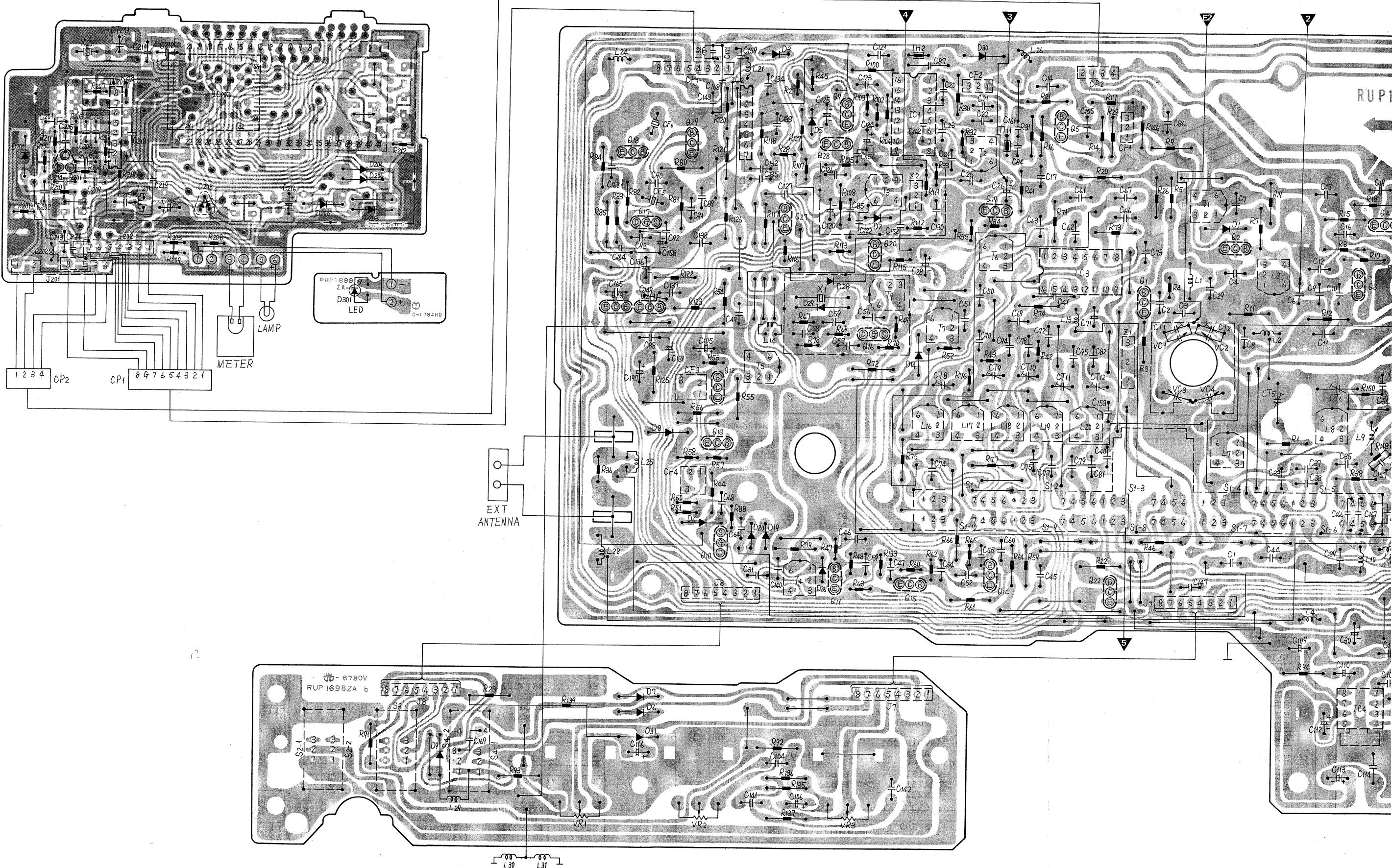


- + B Voltage Line
- FM Signal Line
- AM Signal Line
- SSB
- BFO
- FM Local OSC Signal
- AM Local OSC Signal
- SW Local OSC Signal

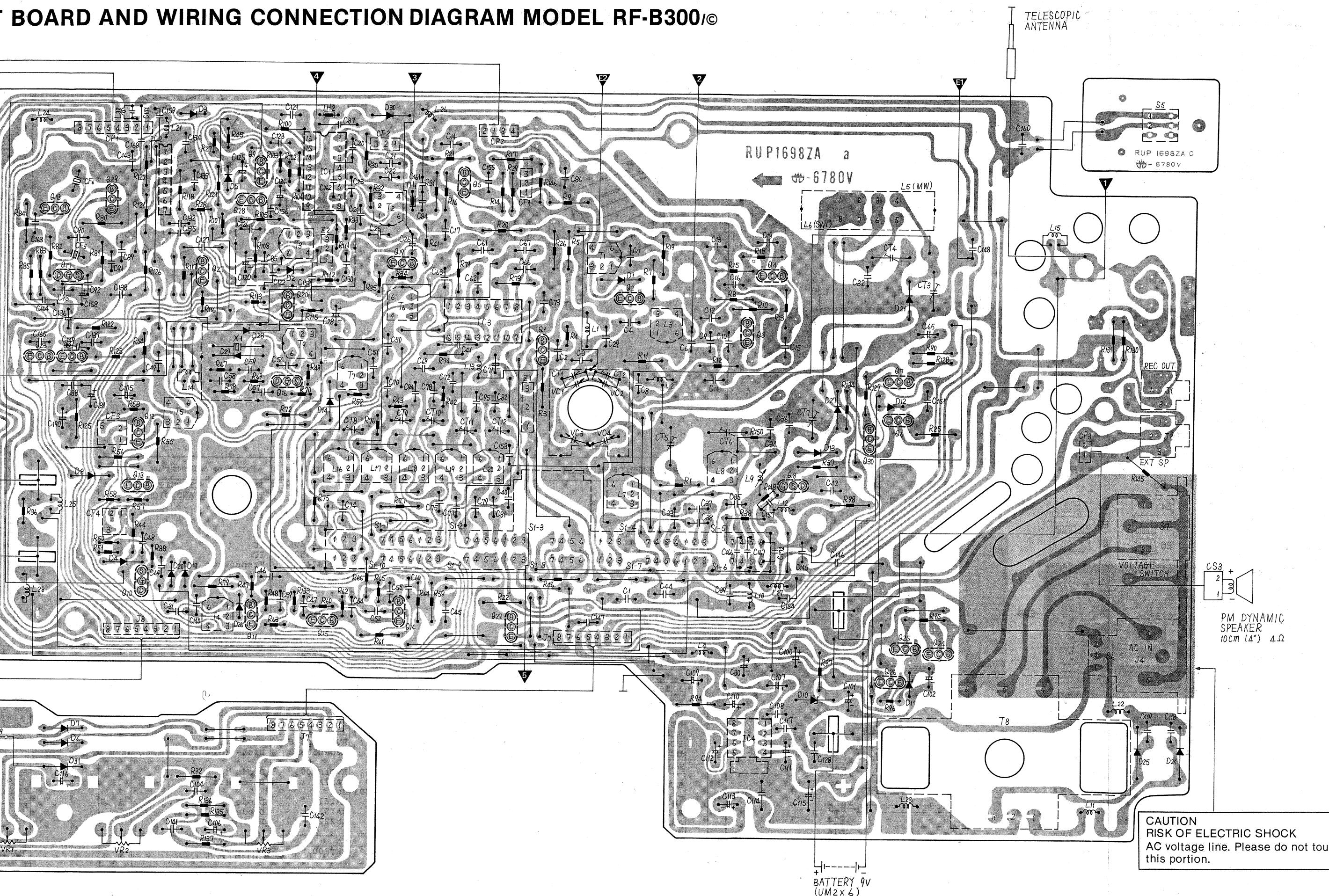
Varicap. Anode  Cathode	General Anode  Cathode	Zener Anode  Cathode	LED Anode  Cathode	Photo Diode Anode  Cathode
--	---	---	---	---



CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-B300/©



BOARD AND WIRING CONNECTION DIAGRAM MODEL RF-B300/C



CABINET AND ELECTRICAL PARTS LOCATION

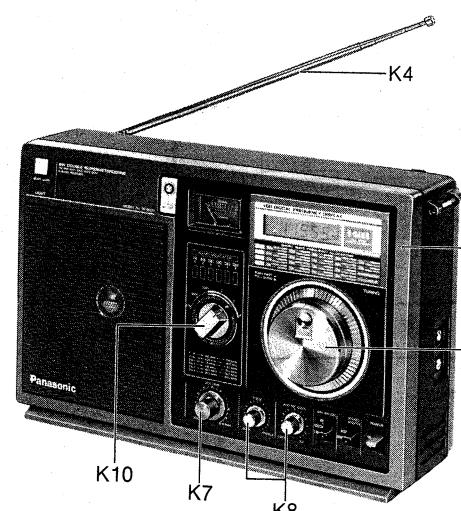


Fig. 24

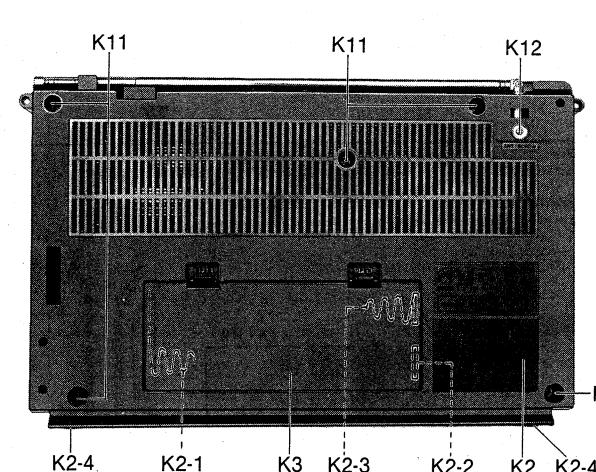


Fig. 25

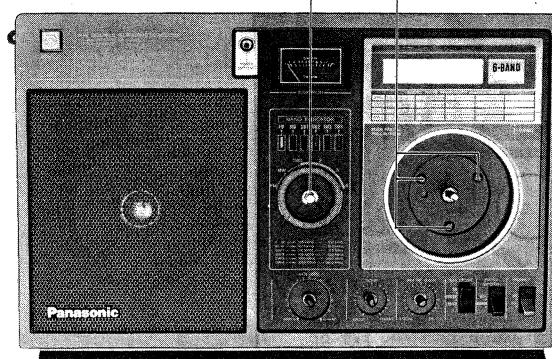


Fig. 26

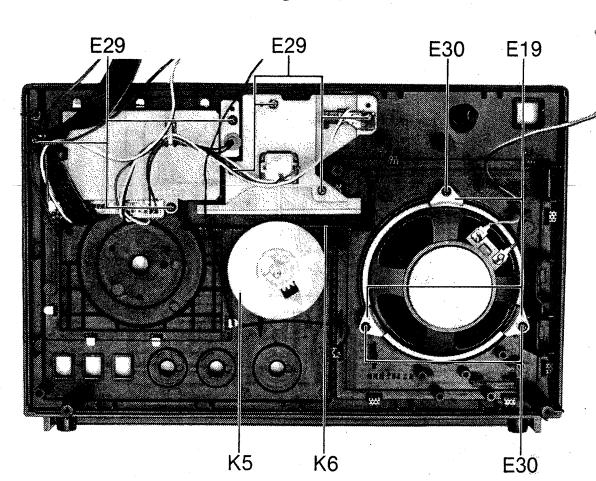


Fig. 27

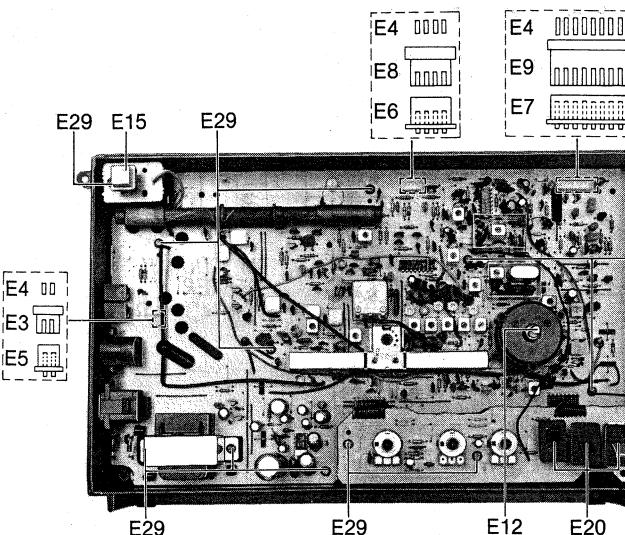


Fig. 28

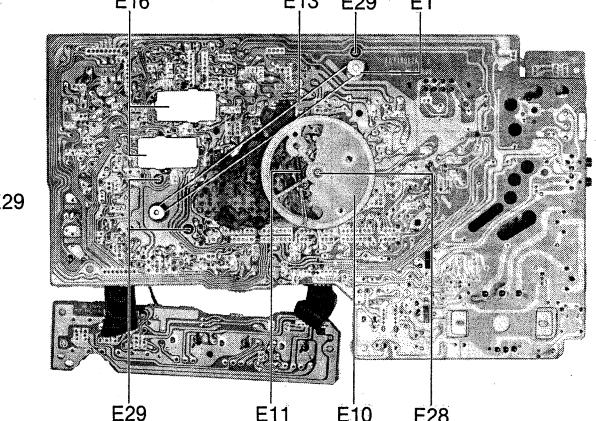


Fig. 29

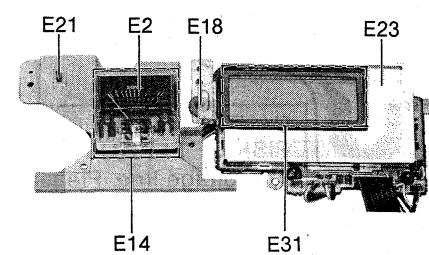


Fig. 30

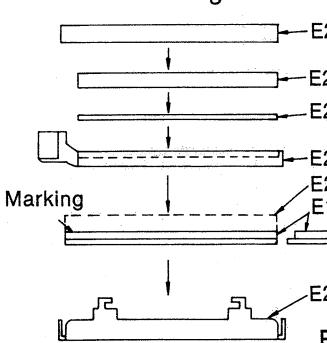


Fig. 31

ACCESSORY AND PACKING MATERIALS

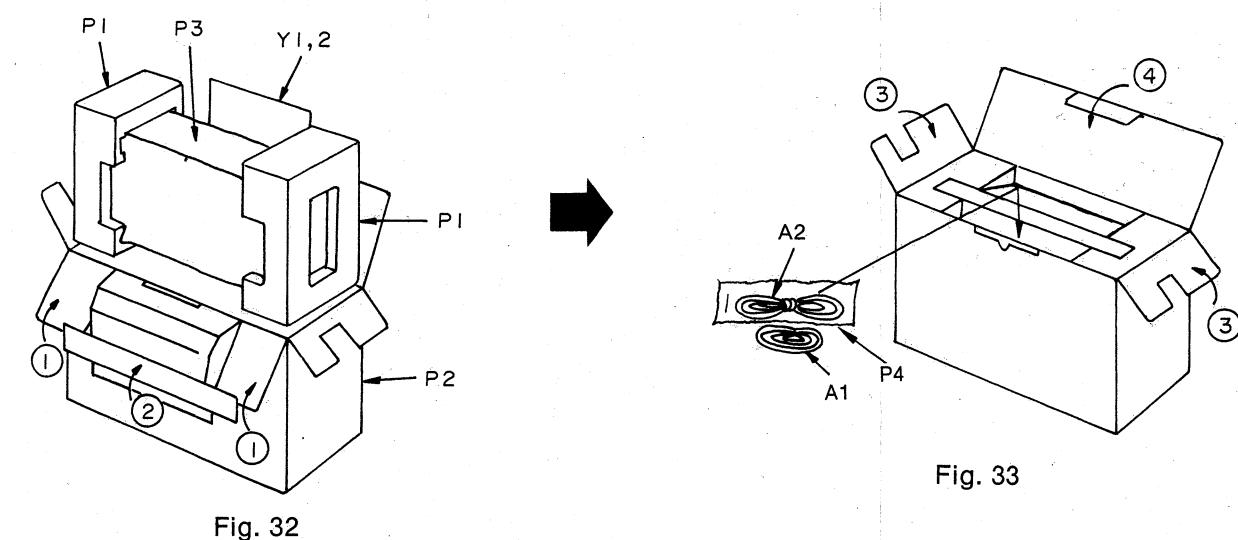


Fig. 32

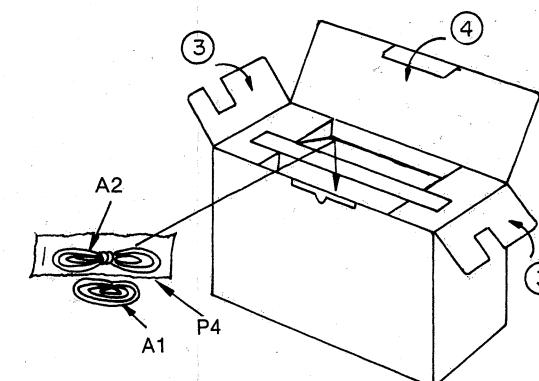


Fig. 33

REPLACEMENT PARTS LIST RF-B300/C (RD83085360C1)

Notes:

- Important safety notice. Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The S mark indicates service standard parts and may differ from production parts.
- RESISTORS & CAPACITORS Unless otherwise specified. All resistors are in OHMS (Ω) K=1000 Ω , M=1000k Ω All capacitors are in MICRO FARADS (μ F) P= $\mu\mu$ F

*Type & Wattage of Resistor Type

ERC:Solid	ERX:Metal Film	ERW:Wirewound Resistor
ERD:Carbon	ERG:Metal Oxide	ERS:Fuseable Resistor
RRD:Chip	ERO:Metal Film	ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W
------------	------------	---------	------	------	------

*Type & Voltage of Capacitor Type

ECFW:Semi-conductor	ECCD,ECKD,ECBT:Ceramic
ECQS:Styrol	ECQM,ECQV,ECQG:Polyester
ECUX:Chip	ECEA,ECSZ:Electrolytic
ECMS:Mica	ECQP:Polypropylene

Voltage

ECQ Type	ECQG, ECQV, Type	ECSZ Type	Others
1H: 50V	0.5: 50V	0F: 3.15V	OJ: 6.3V
2A: 100V	1: 100V	1A: 10V	1A: 10V
2E: 500V	2: 200V	1V: 35V	1C: 16V
2H: 500V		OJ: 6.3V	2A: 100V
		1E, 25: 25V	

Ref. No.	Part No.	Part Name & Description	Per Set
INTEGRATED CIRCUIT, TRANSISTORS AND DIODES			
IC1	RVILA1210	IC	1
IC2	RVIUPC1037H	IC	1
IC3	AN7212	IC	1
IC4	RVIUPC1213C	IC	1
IC201	RVIM54460L	IC	1
IC202	RVIMSM5527GS	IC	1
Q1~4	2SC1674L	Transistor (Si)	4
Q5	2SC1675-L	Transistor (Si)	1 S
Q6, 7, 9, 12	~15, 18~21, 25, 27, 29		
Q8	2SC945-Q	Transistor (Si)	14 S
	2SK195F1	Transistor (Si)	1
Q10, 16, 17	2SK184GR	Transistor (Si)	3
	2SC829-B	Transistor (Si)	1 S
Q22~24	2SA952K2	Transistor (Si)	3
Q26	2SC2001	Transistor (Si)	1 S
Q28, 30	2SA722-S	Transistor (Si)	2 S
Q201	2SC1009F4	Transistor (Si)	1
D1, 4~9, 13	1, 14, 21, 26~28, 31	Transistor (Si)	14
D2, 3, 12, 19, 20	1S2473	Diode (Si)	
D10	20A90	Diode (Ge)	5 S
D11	RVDEQA0106SB	Diode (Si)	1
	RVDRD5R6EB	Diode (Si)	1
D24, 25	RVD1N4003	Diode (Si)	2
D29, 30	MA27A1	Diode (Si)	2
D201, 203	206		
	MA161	Diode (Si)	5 S
D208	MA151WK	Diode (Si)	1
D301	LN222RP	LED	1
THERMISTORS			
TH1, 2	RRT800	Thermistor	2

Ref. No.	Part
X1	RVCD2
X201	RVCA6
L1	RLD4Y
L2	RLD4Y
L3	RLI4M
L4, 27, 31	RLQZB
, 32	
L5, 6	RLF5F
L7	RL03M
L8	RLA3M
L9	RLA3N
LL2, 201	RLQZG
L16	RL02M
L17	RL03M
L18	RL03M
L19	RL03M
L20	RL03M
L21	RLQZB
L24	RLQZB
L30	RLQZB
T1, 2	RLI4M
T3	RLI2M
T4	RLI2M
T5	RLI2M
T6	RLI9M
T7, 9	RLI9M
T8	RLT5J
VR1, 3	EVHOX
VR2	EVHOX
VC1~4	RCV4F
CT3~5	RCV1G
CT6, 7	RCV1G
CT8~10, 12	RCVT2
CT11	RCVT2
CT201	RCVCI
CF1, 2	RVF10
CF3	RVFSF
CF4	RVFSF
CF5	RVFCS
CF6	RVFCS
Z1	RXAB1
Z2	EXAF2
	EAS1C
S1	RSR6J
S2	RST2E
S3	RST2E
S4	RST3E
S5	RSH2E
S6	Refer
S7	RSR2F
J1, 2	QJA01
J4	RJJ1F
K1	RYMFF
K2	RYFFF
K2	RYFFF
K2-1	RJC93

ACCESSORY AND PACKING MATERIALS

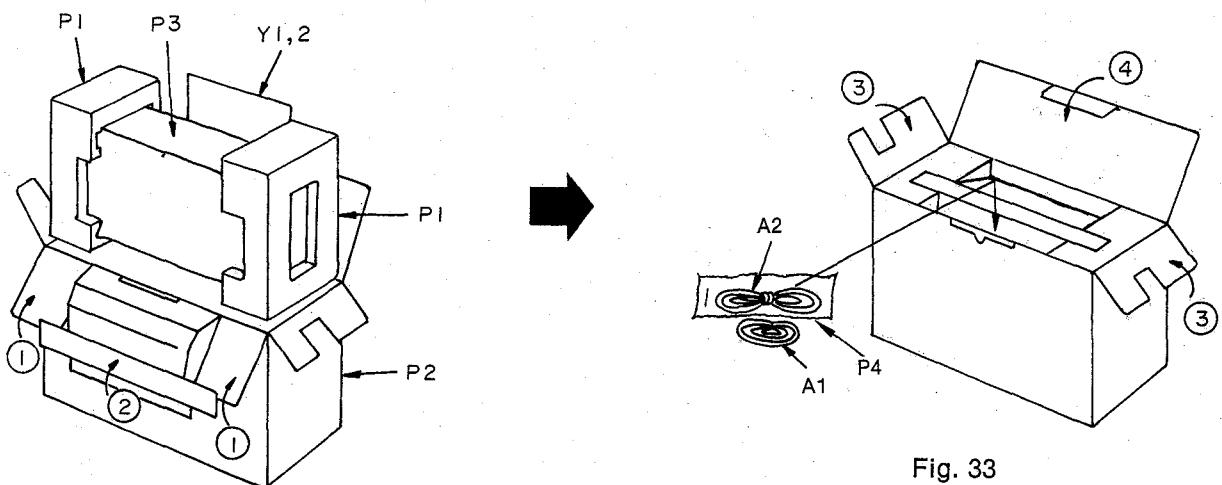


Fig. 32

Fig. 33

REPLACEMENT PARTS LIST..... RF-B300 ©

(RD83085360C1)

Notes: (RD63065360C1)
1. Important safety notice.
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's

2. The S mark indicates service standard parts and may differ from specified parts.

3. RESISTORS & CAPACITORS
Unless otherwise specified.
All resistors are in OHMS (Ω) K=1000 Ω , M=1000k Ω
All capacitors are in MICRO FARADS (μF) P= " μF "

*Type & Wattage of Resister

* Type & Wattage of Resistor
Type

ERC:Solid	ERX:Metal Film	ERW:Wirewound Resister
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resister
RRD:Chip	ERO:Metal Film	ERF:Cement Resister

Wattage

10,16:1/8W 14,25:1/4W 12:1/2W 1:1W 2:2W 3:3W

* Type & Voltage of Capacitor

Type

ECFW:Semi-conductor	ECCD,ECKD,ECBT:Ceramic
ECQS:Styrol	ECQM,ECQV,ECQG:Polyester
ECUX:Chip	ECEA,ECSZ:Electrolytic
ECMS:Mica	ECQP:Polypropylene

Voltage

ECQ Type	ECQG, ECQV, Type	ECSZ Type	Others		
1H: 50V	0.5: 50V	0F:3.15V	OJ	:6.3V	1H,1V,50: 50V
2A:100V	1:100V	1A:10V	1A	:10V	1J : 63V
2E:500V	2:200V	1V:35V	1C	:16V	2A :100V
2H:500V		OJ:6.3V	1E,25:25V		

Ref. No.	Part No.	Part Name & Description	Per Set
		INTEGRATED CIRCUIT, TRANSISTORS AND DIODES	
IC1	RVILA1210	IC	1
IC2	RVIUPC1037H	IC	1
IC3	AN7212	IC	1
IC4	RVIUPC1213C	IC	1
IC201	RVIM54460L	IC	1
IC202	RVIMSM5527GS	IC	1
Q1~4	2SC1674L	Transistor (Si)	4
Q5	2SC1675-L	Transistor (Si)	1
Q6, 7, 9, 12~15, 18~21, 25, 27, 29			S
Q8	2SC945-Q	Transistor (Si)	14
	2SK195FL	Transistor (Si)	1
Q10, 16, 17			
	2SK184GR	Transistor (Si)	3
Q11	2SC829-B	Transistor (Si)	1
Q22~24	2SA952K2	Transistor (Si)	3
Q26	2SC2001	Transistor (Si)	1
Q28, 30	2SA722-S	Transistor (Si)	2
Q201	2SC1009F4	Transistor (Si)	1
D1, 4~9, 13, 14, 21, 26~28, 31	1S2473	Diode (Si)	14
D2, 3, 12, 19, 20	2OA90	Diode (Ge)	5
D10	RVDEQA0106SB	Diode (Si)	1
D11	RVDRD5R6EB	Diode (Si)	1
D24, 25	RVDLN4003	Diode (Si)	2
D29, 30	MA27A1	Diode (Si)	2
D201, 203~206			
	MA161	Diode (Si)	5
D208	MA151WK	Diode (Si)	1
D301	LN222RP	LED	1
		THERMISTORS	
TH1, 2	RRT800	Thermistor	2

Ref. No.	Part No.	Part Name & Description	Per Set	Ref. No.	Part No.	Part Name & Description	Per Set
		CRYSTALS		K2-2	RJC212Z	Terminal, Battery + Side	1
X1	RVCD2455NRM	Crystal	1	K2-3	RJC9003Z	Spring, Battery - Side	1
X201	RVCA6553NZN	Crystal	1	K2-4	RHG342Z	Rubber, Foot	4
		COILS AND TRANSFORMERS		K3	RYNFB300M	Battery Cover Ass'y	1
L1	RLD4Y44	Antenna Coil, FM	1	K4	XEARR225EAY	Telescopic Antenna	1
L2	RLD4Y43	Oscillator Coil, FM	1	K5	RDG5022Z	Band Shaft	1
L3	RLI4M103	Trap Coil	1	K6	RGK9005Z	Band Indicator	1
L4,27,31	RLQZB101K	Choke Coil	4	K7	RBN655Z	Knob, Volume	1
,32				K8	RBN656Z	Knob, Tone, RF Gain	2
L5,6	RLF5F94	Antenna Coil, MW, SW1	1	K9	RYTFB300M	Tuning Knob Ass'y	1
L7	RLO3M22	Antenna Coil, SW2	1	K10	RBS153Z1	Knob, Band	1
L8	RLA3M67	Antenna Coil, SW3	1	K11	XTV3+40G	Screw, Cabinet M'tg	5
L9	RLA3N14	Antenna Coil, SW4	1	K12	XYN3+F12FN	Screw, Telescopic	1
L11,201	RLQZG102K	Choke Coil	2	K13	XUC4FT	Antenna M'tg	1
L16	RLO2M14	Oscillator Coil, MW	1	K14	XTV3+12G	Circlip, Band Shaft	1
L17	RLO3M32	Oscillator Coil, SW1	1			M'tg	S
L18	RLO3M15	Oscillator Coil, SW2	1			Screw, Tuning Shaft	3
L19	RLO3M78	Oscillator Coil, SW3	1			Block M'tg	
L20	RLO3M85	Oscillator Coil, SW4	1			ELECTRICAL PARTS	
L21	RLQZB471K	Choke Coil	1	E1	RZCFB300M	Dial Roller Ass'y	1
L24	RLQZB100K	Choke Coil	1	E2	RSM2540Z	Meter	1
L30	RLQZB4R7K	Choke Coil	1	E3	RJS2L3Z	Socket, 2 Pin	1
T1,2	RLI4M101	IFT, FM	2	E4	RJT707Z	Terminal, Socket	14
T3	RLI2M402	IFT, AM 2nd	1	E5	RJP2G4Z	Plug, 2 Pin	1
T4	RLI2M214	IFT, AM 2nd	1	E6	RJP4G4Z	Plug, 4 Pin	1
T5	RLI2M205	IFT, AM 2nd	1	E7	RJP8G4Z	Plug, 8 Pin	1
T6	RLI19M3	IFT, AM 1st	1	E8	RJS4L3Z	Socket, 4 Pin	1
T7,9	RLI9M7	IFT, AM 1st	2	E9	RJS8L3Z	Socket, 8 Pin	1
T8	RLT5J3C1A	Power Transformer	1 A	E10	RDD655Z	Drum, Dial	1
		VARIABLE RESISTORS		E11	RDS4090A	Spring, Drum	1
VR1,3	EVHOXAF15A54	Variable Resistor, 50kΩ (A)	2	E12	RDT9135Z	Tuning Shaft Ass'y	1
VR2	EVHOXAF15A14	Variable Resistor, 10kΩ (A)	1	E13	RDZ205A1	Cord, Dial	1
		VARIABLE CAPACITORS		E14	RHG2032Z	Rubber, Meter	1
VCl~4	RCV4RC2VK	Tuning Capacitor/with Trimmer Capacitor (CT1,2)	1	E15	RBC485Z	Button, Light	1
CT3~5	RCV1GT10A	Trimmer Capacitor	3	E16	RMC382Z	Shield Cover	2
CT6,7	RCV1GT20A	Trimmer Capacitor	2	E17	RADLCD453-02	LCD	1
CT8~10,12	RCVTZ11F	Trimmer Capacitor	4	E18	XAMR43T100A	Pilot Lamp	1
CT11	RCVTZ20F	Trimmer Capacitor	1	E19	RMS12B	Bracket, Speaker	3
CT201	RCVTZ3110	Trimmer Capacitor	1	E20	RUV379Z	Cover, Switch	3
		CERAMIC FILTERS		E21	RMP128Z	Holder, LED	1
CF1,2	RVF107NAR	Ceramic Filter	2	E22	RMC891Z	Cover, LCD	1
CF3	RVFSFP455H10	Ceramic Filter	1	E23	RMC892Z	Shield Plate, LCD Block	1
CF4	RVFSFP455K	Ceramic Filter	1	E24	RHG5024Z	Conductive Rubber	2
CF5	RVFCSB453R5	Ceramic Element	1	E25	RHR1219Z	Spacer	1
CF6	RVFCSB456R5	Ceramic Element	1	E26	RHR2044Z	Cushion	1
		COMPONENT COMBINATIONS		E27	RDH199Z	Reflection Plate	1
Z1	RXABPMB1	Component Combination	1	E28	XYN26+C8	Screw, Drum M'tg	1
Z2	EXAF203Z471F	Component Combination	1	E29	XTV3+12G	Screw, Circuit Board, etc. M'tg	23
		SPEAKER		E30	XTV3+10G	Screw, Speaker, etc. M'tg	3
	EAS10P253S	Speaker, 10 cm(4"), 4Ω	1	E31	RMC936Z	Shield Cover	1
		SWITCHES				ACCESSORIES	
S1	RSR6J04Z	Switch, Band	1	A1	RQC9017Y	Belt, Shoulder	1
S2	RST2B34Y	Switch, Power	1	A2	RJA22Y	Cord, AC Power	1
S3	RST2B34Z	Switch, Band Width	1			PACKING MATERIALS	
S4	RST2B22Z	Switch, AM Mode	1	P1	RPN9447Z	Pad	1
S5	RSH2B24X	Switch, Light	1	P2	RPK1665Z	Gift Box, for U.S.A	1
S6	Refer to J4	Switch, AC/DC		P2	RPK1679Z	Gift Box, for Canada	1
S7	RSR2A07Z	Switch, Voltage Selector	1 A	P3	XZB50x40A01	Polyethylene Cover, Set	1
		JACKS		P4	XZB10x25A04	Polyethylene Cover, AC Cord	1
J1,2	QJA0172A	Jack, REC OUT, EXT SP	2			PRINTED MATERIALS	
J4	RJJ1A3Z	Jack, AC	1 A	Y1	RQX4189Z	Instruction Book, for U.S.A	1
		CABINET PARTS		Y1	RQX4199Z	Instruction Book, for Canada	1
K1	RYMFB300M8	Front Cabinet Ass'y	1	Y2	RQX9154Z	Short Wave Manual, for U.S.A	1
K2	RYFFB300M	Rear Cabinet Ass'y, for U.S.A.	1				
K2	RYFFB300C	Rear Cabinet Ass'y, for Canada	1				
K2-1	RJC937Z	Terminal, Battery + Side	1				

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R8	ERD25FJ102	1K S	R100	ERD25FJ102	1K S	C31	ECCD1H100KC	10P	C118	ECKD1H103ZF	0.01
R9	ERD25FJ101	100 S	R102	ERD25TJ104	100K S	C32	ECCD1H120KC	12P	C119	ECKD1H103ZF	0.01
R10	ERD25FJ333	33K S	R103	ERD25TJ104	100K S	C33	ECQS2B681JZ	680P	C120	ECEA1CS330	33 S
R11	ERD25FJ682	6.8K S	R104	ERD25FJ220	22 S	C34	ECCD1H330KC	33P	C121	ECKD1H103MD	0.01
R12	ERD25FJ332	3.3K S	R105	ERD25FJ680	68 S	C35	ECMS05181J	180P	C122	ECFV1C104MD	0.1
R13	ERD25FJ563	56K S	R107	ERD25FJ103	10K S	C36	ECCD1H120KC	12P	C123	ECKD1H223ZF	0.022
R14	ERD25FJ473	47K S	R108	ERD25FJ103	10K S	C37	ECCD1H150KC	15P	C124	ECEA0JU471	470
R15	ERD25FJ470	47 S	R111	ERD25FJ472	4.7K S	C38	ECCD1H390KC	39P	C125	ECEA1LES220	22 S
R16	ERD25FJ102	1K S	R112	ERD25FJ472	4.7K S	C39	ECCD1H180KC	18P	C126	ECFT1E223MD	0.022
R17	ERD25FJ102	1K S	R113	ERD25TJ105	1M S	C40	ECCD1H100KU	10P	C127	ECBS1H1R0	1P
R18	ERD25FJ820	82 S	R115	ERD25FJ122	1.2K S	C41	ECBS1H221KB	220P	C128	ECKD1H333ZF	0.033
R19	ERD25FJ102	1K S	R116	ERD25FJ272	2.7K S	C42	ECFT1E683MD	0.068	C130	ECFT1E683MD	0.068
R20	ERD25FJ470	47 S	R117	ERD25TJ564	560K S	C44	ECFT1E223MD	0.022	C131	ECEA1HSR22	0.22
R21	ERD25FJ331	330 S	R118	ERD25FJ182	1.8K S	C45	ECFT1E223MD	0.022	C132	ECCD1H331K	330P
R22	ERD25FJ682	6.8K S	R120	ERD25FJ103	10K S	C46	ECFT1E223MD	0.022	C133	ECFT1E103MD	0.01
R23	ERD25FJ223	22K S	R121	ERD25FJ102	1K S	C47	ECFT1E103MD	0.01	C134	ECFT1E223MD	0.022
R25	ERD25FJ103	10K S	R122	ERD25FJ333	33K S	C49	ECFT1E473MD	0.047	C135	ECFT1C104MD	0.1
R26	ERD25FJ472	4.7K S	R123	ERD25FJ123	12K S	C50	ECCD1H1R5C	1.5P	C136	ECEA1HS100	10 S
R27	ERD25TJ104	100K S	R125	ERD25FJ681	680 S	C51	ECCD1H470KC	47P	C137	ECFT1E103MD	0.01
R28	ERD25FJ101	100 S	R126	ERD25FJ102	1K S	C52	ECFT1E223MD	0.022	C138	ECFT1C104MD	0.1
R29	ERD25FJ221	220 S	R127	ERD25FJ153	15K S	C54	ECCD1H150KC	15P	C139	ECFT1E223MD	0.022
R30	ERD25FJ102	1K S	R128	ERD25FJ682	6.8K S	C55	ECCD1H390KC	39P	C140	ECQP2A152JZ	1500P
R31	ERD25FJ680	68 S	R129	ERD25FJ682	6.8K S	C56	ECCD1H2R5C	2.5P	C141	ECKD1H102MD	0.001
R32	ERD25FJ392	3.9K S	R130	ERD25FJ103	10K S	C57	ECFV1E683MD	0.068	C142	ECFT1E473MD	0.047
R33	ERD25FJ332	3.3K S	R131	ERD25FJ103	10K S	C58	ECMS05101J	100P	C143	ECKD1H473MD	0.047
R34	ERD25TJ474	470K S	R133	ERD25FJ471	470 S	C59	ECMS05101J	100P	C145	ECKD1H102ZF	0.001
R35	ERD25FJ681	680 S	R134	ERD25FJ223	22K S	C60	ECFT1E223MD	0.022	C146	ECCD1H101K	100P
R36	ERC12GM103	10K S	R135	ERD25FJ103	10K S	C61	ECFT1E103MD	0.01	C147	ECCD1H101K	100P
R37	ERD25TJ564	560K S	R136	ERD25FJ123	12K S	C62	ECFT1E103MD	0.01	C148	ECCD1H101K	100P
R38	ERD25FJ101	100 S	R137	ERD25FJ123	12K S	C63	ECFT1E223MD	0.022	C149	ECKD1H102MD	0.001
R41	ERD25FJ152	1.5K S	R139	ERD25FJ103	10K S	C64	ECFT1E223MD	0.022	C150	ECCD1H101K	100P
R42	ERD25FJ682	6.8K S	R145	ERC12ZGM335	3.3M A	C65	ECEA50ZR47	0.47 S	C151	ECKD1H102MD	0.001
R43	ERD25FJ103	10K S	R146	ERD25FJ103	10K S	C66	ECCD1H050CC	5P	C152	ECFV1C104MD	0.1
R44	ERD25FJ332	3.3K S	R148	ERD25FJ222	2.2K S	C67	ECFT1E223MD	0.022	C153	ECCD1H270KC	27P
R45	ERD25TJ104	100K S	R150	ERD25FJ123	12K S	C68	ECFT1E103MD	0.01	C154	ECQP2A122JZ	1200P
R46	ERD25FJ181	180 S	R201	RRD18XJ151	150	C69	ECCD1H150KC	15P	C155	ECKD1H103MD	0.01
R47	ERD25FJ103	10K S	R202	RRD18XJ472	4.7K	C70	ECCD1H180KC	18P	C156	ECFV1E473MD	0.047
R48	ERD25FJ182	1.8K S	R203	RRD18XJ681	680	C71	ECEA1HS100	10 S	C157	ECCD1H101K	100P
R49	ERD25FJ222	2.2K S	R204	RRD18XJ103	10K	C72	ECFT1E223MD	0.022	C158	ECEA1AS470	47 S
R50	ERD25FJ152	1.5K S	R205	RRD18XJ102	1K	C73	ECFT1E223MD	0.022	C159	ECFV1E153MD	0.015
R51	ERD25FJ152	1.5K S	R206	RRD18XJ561	560	C74	ECQP2A391JZ	390P	C160	ECKD1H103MD	0.01
R52	ERD25FJ182	1.8K S	R207	RRD18XJ103	10K	C75	ECQS2B122JZ	1200P	C161	ECKD1H102MD	0.001
R53	ERD25FJ472	4.7K S	R208	RRD18XJ332	3.3K	C77	ECQS2B681JZ	680P	C162	ECFV1E473MD	0.047
R54	ERD25FJ123	12K S	R209	RRD18XJ221	220	C78	ECCD1H220KC	22P	C163	ECKD1H103MD	0.01
R55	ERD25FJ331	330 S	R210	RRD18XJ182	1.8K	C79	ECQS2B471JZ	470P	C164	ECKD1H103MD	0.01
R56	ERD25FJ271	270 S	R211	RRD18XJ472	4.7K	C81	ECMS05161J	160P	C165	ECKD1H102MD	0.001
R57	ERD25FJ472	4.7K S	R212	RRD18XJ103	10K	C82	ECCD1H220KC	22P	C166	ECCD1H101K	100P
R58	ERD25FJ123	12K S	R213	RRD18XJ103	10K	C84	ECFT1E223MD	0.022	C167	ECCD1H470KC	47P
R59	ERD25FJ333	33K S	R214	RRD18XJ102	4.7K S	C85	ECKD1H103MD	0.01	C168	ECKD1H103MD	0.01
R60	ERD25FJ102	1K S	R215	RRD18XJ103	10K	C86	ECKD1H471KB	470P	C169	ECKD1H103MD	0.01
R61	ERD25FJ153	15K S	R216	RRD18XJ103	10K	C87	ECBS1C103NY	0.01	C171	ECCD1H470KC	47P
R62	ERD25FJ103	10K S	R217	RRD10TJ472	4.7K S	C88	ECFT1E333MD	0.033	C172	ECCD1H330KC	33P
R63	ERD25FJ221	220 S	R218	RRD18XJ472	4.7K	C89	ECKD1H102ZF	0.001	C190	ECEA1HS100	10 S
R64	ERD25FJ153	15K S	R219	RRD10TJ472	4.7K S	C90	ECQS2B301JZ	300P	C201	ECUX1H101K	100P
R65	ERD25FJ103	10K S	R220	ECFT1E223MD	0.022	C91	ECCD1H331K	330P	C202	ECUX1H103MD	0.01
R66	ERD25FJ472	4.7K S	R221	ECFT1E223MD	0.022	C92	ECCD1H331K	330P	C203	ECUX1H103MD	0.01
R67	ERD25FJ102	1K S	R222	ECFT1E103MD	0.01	C93	ECFT1E223MD	0.022	C204	ECUX1H473MD	0.047
R69	ERD25FJ102	1K S	R223	ECFT1E103MD	0.01	C94	ECCD1H050CU	5P	C205	ECUX1H103MD	0.01
R70	ERD25FJ182	1.8K S	R224	ECFT1E202	2P	C95	ECCD1H220KC	22P	C206	ECEA1AS470	47 S
R71	ERD25FJ221	220 S	R225	ECFT1E223MD	0.022	C100	ECEAOJS471	470 S	C208	ECUX1H223MD	0.022
R72	ERD25FJ560	56 S	R226	ECFT1E223MD	0.022	C101	ECEA1AS101	100 S	C209	ECUX1H103MD	0.01
R73	ERD25FJ151	150 S	R227	ECFT1E103MD	0.01	C102	ECEA1AS101	100 S	C211	ECUX1H220KC	22P
R74	ERD25FJ681	680 S	R228	ECFT1E103MD	0.01	C104	ECFT1C104MD	0.1	C212	ECUX1H220KC	22P
R75	ERD25FJ101	100 S	R229	ECFT1E103MD	0.01	C105	ECEAOJU471	470 S	C213	ECUX1H330KC	33P
R76	ERD25FJ333	33K S	R230	ECFT1E103MD	0.01	C106	ECEA50ZRL	0.1 S	C214	ECUX1H180KC	18P
R77	ERD25FJ820	82 S	R231	ECFT1E103MD	0.01	C107	ECEA50Z1	1 S	C215	ECUX1H101K	100P
R78	ERD25FJ154	150K S	R232	ECFT1E103MD	0.01	C108	ECKD1H332MD	0.0033	C217	ECKD1H102MD	0.001
R79	ERD25FJ153	15K S	R233	ECFT1E103MD	0.01	C109	ECEA1AS221	220 S	C218	ECFV1C104MD	0.1
R80	ERD25TJ104	100K S	R234	ECFT1E103MD	0.01	C110	ECEA1AS470	47 S	C219	ECCD1H331K	330P
R81	ERD25FJ152	1.5K S	R235	ECFT1E103MD	0.01	C111	ECEA1CS470	47 S	C220	ECFV1E473MD	0.047
R82	ERD25FJ152	1.5K S	R236	ECFT1E103MD	0.01	C112	ECEA1LES101	100 S	C221	ECKD1H103MD	0.01
R83	ERD25FJ221	220 S	R237	ECFT1E102MD	0.001	C113	ECEA1AS471	470 S			
R84	ERD25FJ682	6.8K S	R238	ECFT1E473MD	0.047	C114	ECQG1H224MZ	0.22			
R85	ERD25FJ682	6.8K S	R239	ECFT1E473MD	0.047						
R88	ERD25FJ102	1K S	R240	ECFT1E473MD	0.047						
R90	ERD25FJ333	33K S	R241	ECFT1E473MD	0.047						
R91	ERD25TJ683	68K S	R242	ECFT1E473MD	0.047						
R92	ERD25FJ152	1.5K S	R243	ECFT1E473MD	0.047						
R93	ERD25FJ682	6.8K S	R244	ECFT1E473MD	0.047						
R94	ERD25FJ561	560 S	R245	ECFT1E153MD	0.015						
R95	ERD25FJ4R7	4.7 S	R246	ECEA50Z1	1 S						
R96	ERD25FJ681	680 S	R247	ECEA25Z4R7	4.7 S						
R97	ERD25FJ102	1K S	R248	ECKD1H102MD	0.001						
R98	ERD25FJ470	47 S	R249	ECEA1AS101	100 S						
			R30	ECEA1AS101	100 S						